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RESEARCH ARTICLE

New pests of jewel beetles (Coleoptera: Buprestidae) on poplars in Southwestern Bulgaria

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Abstract

In 2025, strong attacks by jewel beetles (Coleoptera: Buprestidae) in hybrid poplar plantations (*Populus* x euramericana cl. I-214) were registered along Mesta River in the land of town of Hadzhidimovo on the territory of State Forest Enterprise Gotse Delchev. Samples (cuttings of approximate length 25-30 cm) from attacked poplar stems were collected and examined in the Forest Research Institute and Forest Protection Station in Sofia. They were placed in photoeclectors in laboratory conditions at room temperature (18-22°C) and were observed for emergence of insect pests and parasitoids on them. As a result, three species of jewel beetles have been reared from stem samples as follow: *Trachypteris picta decostigma*, *Agrilus ater* and *A. suvorovi*. They were first established in poplar plantations in Southwestern Bulgaria. The most abundant in buprestid complex was *T. picta decostigma* (81.4%), followed by *A. suvorovi* (13.9%) and *A. ater* (4.7%). In this study, *A. ater* and *A. suvorovi* were found as new xylophages of poplars in Bulgaria. *Iphiaulax impostor* (Hymenoptera: Braconidae) was reared as a parasitoid of *T. picta decostigma* for the first time in Bulgaria.

Keywords

Populus, plantations, Buprestidae, *Agrilus*, *Trachypteris*, *Iphiaulax impostor*, parasitoid

Introduction

Poplars (*Populus* spp.) are food plants for a large number of herbivorous insects. In the entomological literature there is information about 650-750 species from differ-

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ent taxonomic insect groups that are trophically associated with the *Populus* genus (Grechkin, Vorontsov, 1962; Rotah, 2003).

In Bulgaria, more than 300 insect species are known to feed on poplars (Georgiev, 2005; Georgiev, Doychev, 2010). The insect complex includes about 50 xylophagous species from the families Buprestidae, Cerambycidae, Scolytidae, Tortricidae, Cossidae, Sesiidae, Xiphydriidae, Siricidae and Agromyzidae. Among them, the most harmful are *Trachypteris picta decostigma* (F.) (Coleoptera: Buprestidae), *Saperda carcharias* (L.), *Saperda populnea* (L.) (Coleoptera: Cerambycidae), *Sesia apiformis* (Cl.), *Paranthrene tabaniformis tabaniformis* (Rott.) (Lepidoptera: Sesiidae) and *Gypsonoma aceriana* (Dup.) (Lepidoptera: Tortricidae). Xylophagous insects affect non-restorable and hard to restore tissues and organs (bark, phloem, and xylem), causing permanent health state worsening and ruin of the infested trees (Georgiev, 2000; Georgiev et al., 2017).

This note reports new jewel beetles (Coleoptera: Buprestidae) as pests in poplar plantations along the Mesta River in Southwestern Bulgaria.

Material and methods

The research was conducted in 2025 in poplar plantations attacked by xylophagous insects along Mesta River in the land of town of Hadzhidimovo (N 41.530398°, E 23.858534°, 472 m a.s.l.), on the territory of State Forest Enterprise Gotse Delchev in Southwestern Bulgaria (Fig. 1). The plantations of 6-14 years-old were created

Fig. 1. Location of the studied poplar plantations

by widely used in forest practice hybrid cultivar *Populus* x euramericana (Dode) Guinier I-214.

In February-March 2025, cuttings of 25-30 cm in length were collected from the stems of the attacked trees and transported to the entomological laboratories of the Forest Protection Station - Sofia and the Forest Research Institute, Bulgarian Academy of Sciences. The samples were placed in photocells and grown at room temperature (18-22°C) for the appearance of wood-boring insects and parasitoids on them.

The biological material was deposited in the entomological collection of the Forest ResearchInstitute in Sofia.

Results

During field surveys, sites with larval development of *Trachypteris picta decostigma* (Fabricius, 1787) (Fig. 2A) and larval galleries of *Agrilus* sp. (Fig. 2B) (Coleoptera: Buprestidae) were identified in poplar stems.

In laboratory conditions, three species of jewel beetles (Coleoptera: Buprestidae) have been reared from photoelectors: *Trachypteris picta decostigma* (Fabricius, 1787) from subfamily Buprestinae as well as *Agrilus ater* (Linnaeus, 1767) and *Agrilus suvorovi* Obenberger, 1935 from subfamily Agrilinae (Table 1). The most abundant in buprestid complex was *Trachypteris picta decostigma* (81.4%) (Fig. 3), followed by *Agrilus suvorovi* (13.9%) and *A. ater* (4.7%). Two species, *A. ater* and *A. suvorovi* were found as new xylophages of poplars in Bulgaria.

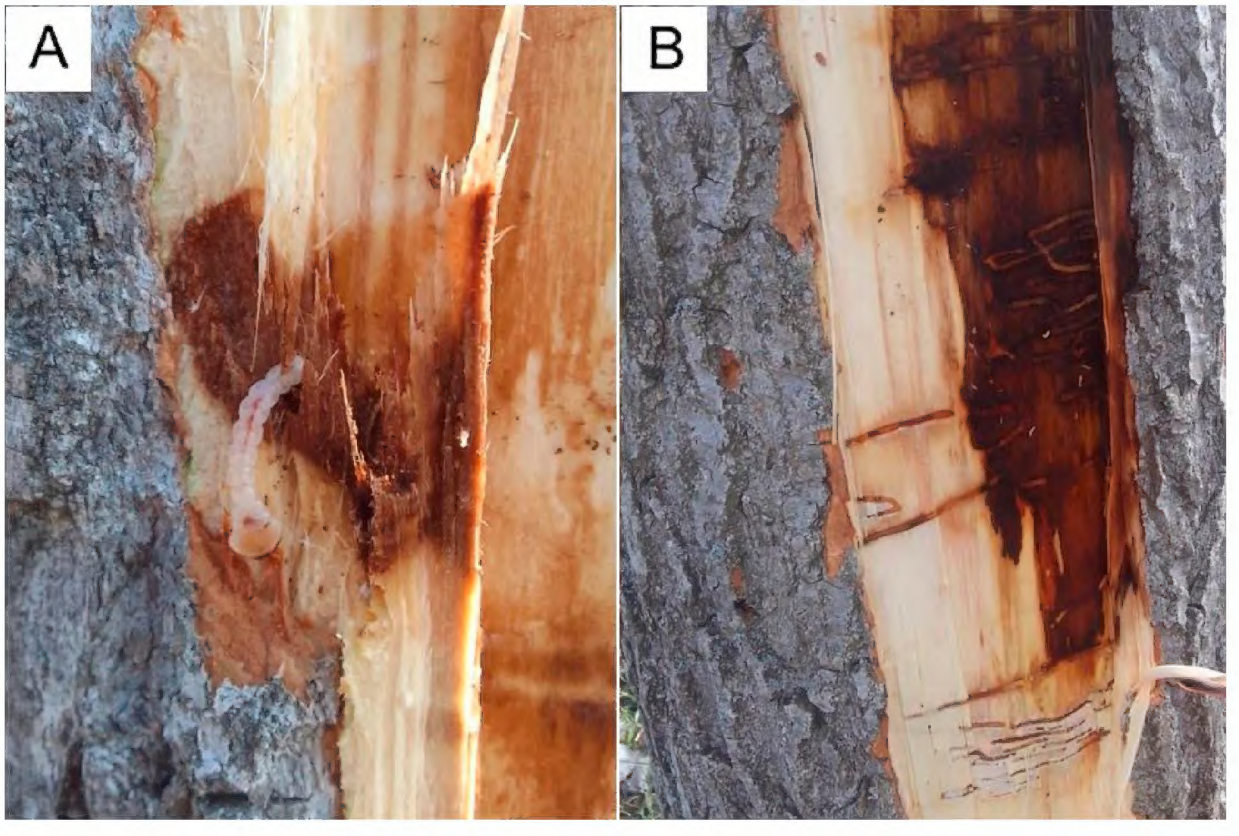

Fig. 2. Damages on poplars caused by jewel beetles: A – larva of *Trachypteris picta decostigma*; B – larval galleries of *Agrilus* sp.

Table 1. Reared jewel beetles in laboratory conditions

№	Species	Date	Number	Relative share, %
1	*Trachypteris picta decostigma*	23 June–23 July 2025	35	81.4
2	*Agrilus suvorovi*	2–12 May 2025	6	13.9
3	*Agrilus ater*	13–27 May 2025	2	4.7
	Total		43	100.0

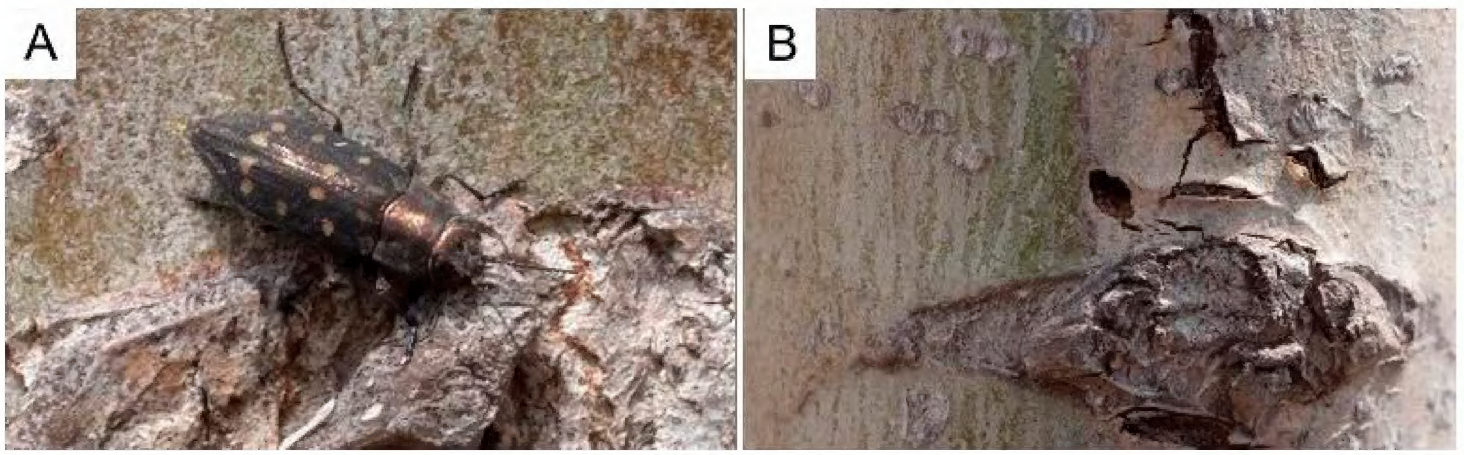

Fig. 3. *Trachypteris picta decostigma*: A – imago; B – exit hole

In this study, *Iphiaulax impostor* (Scopoli, 1763) (Hymenoptera: Braconidae) was established for the first time as a parasitoid of *T. picta decostigma* in Bulgaria. Two specimens (a male and a female) were reared in the period 3-26 June 2025 from host larvae.

Discussion

Trachypteris picta (Pallas, 1773) is widely distributed across the Nearctic, Palaearctic and Oriental realms with three subspecies: *T. picta decostigma*, *T. picta picta* and *T. picta indica* (Théry, 1930) (Kubáň, 2016). The highly suitable areas for *T. picta* are primarily located in southern Europe (Liu et al., 2025). The remaining two jewel beetles, *A. ater* and *A. suvorovi* are distributed in Palaearctic realm (Jendek, 2016).

Among the three buprestids identified in this study, only *T. picta decostigma* (syn. *Melanophila picta*) has been reported as a pest of poplars in Bulgaria (Keremidchiev, Vatov, 1963). The authors present information about mass attacks in 1961-1962 in Blagoevgrad and Pleven districts, in which 80-90% of poplar saplings and young trees were severely affected. Later, the species was reported as a pest of economic importance in the Maritsa valley as well (Raykova, Bochev, 2003a, b). It is known as dangerous pest on poplars not only in Bulgaria, but also in Greece (Kailidis, 1966, 1970), Italy (Lapietra, Allegro, 1990), Iran (Babmorad et al., 2008),

China (Liu et al., 2025), and India (Thakur, 1999). However, *T. picta* is mainly associated with weakened host plants (Grechkin, Vorontsov, 1962; Georgiev, 2005).

In Bulgaria the remaining two buprestids (*A. ater* and *A. suvorovi*) have also been mentioned in trophic relationships with poplars based on literature data (Sakalian, 2003).

The Palearctic braconid species *Iphiaulax impostor* is mainly associated with longhorn beetles (Tobias, 1986). In Bulgaria, it was reared from *Saperda populnea* (Linnaeus, 1758) (Coleoptera: Cerambycidae) (Tsankov, Georgiev, 1991; Georgiev, 2001, etc.). The species is also known as a parasitoid of buprestids incl. *T. picta* (Kailidis, 1966, 1970; Cao et al., 2020).

In conclusion, it should be noted that new records expands knowledge about harmfulness and ecology of jewel beetles on poplars in Bulgaria.

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